Sub C1

--With continued reference to FIG. 2, it is observed that within the pattern 42, the optical structures 40 are formed with a larger amplitude A1 at the first edge 36 and decrease in amplitude A2 toward the second edge 38. The larger amplitude A1 produces more optical power along the groove axis because of the higher surface slopes. The optical power of this pattern then decreases as a function of the distance from the first edge 36. This arrangement of the optical structures 40 and the pattern 42 is purposeful. As noted, non-uniformities in the output of lightguide 16 may be concentrated near the input surface 21 while there may be less non-uniformity farther from the input surface 21. Thus, the optical structures 40 and the pattern 42 are arranged to provide more diffusion near first edge 36. In application, first edge 36 will be disposed substantially adjacent the input surface 21 of the lightguide 16. Pattern 42 may have a uniform pitch, p, as shown, and the depth of the optical structures 40 may decrease to naught toward the second edge 38. This pattern, as will be discussed in more detail below, may be produced using any tool type.--

Q1

Please replace the paragraph beginning at page 12, line 9 with the following paragraph.

--With reference to FIG. 3, an extractor film 50 is shown. Formed in a surface 52 of the extractor film 50 are a plurality of optical structures 54 disposed in a pattern 56. The optical structures 54 are arranged essentially to replace the white dot pattern for providing extraction of light from the lightguide. While shown in FIG. 3 as circles or dots having varying diameters d1 and d2, the optical structures 54 are not collectively limited to any particular shape nor are they limited to any one particular shape within the pattern 56. Therefore, the optical structures 54 may be prisms, lines, dots, squares, ellipses or generally any shape. Moreover, the optical structures 54 may be spaced very closely together within the pattern 56, much more so than the dots within a dot pattern may be

Q2

spaced and, for example, within about 50-100 μm of each other. This very close spacing of the optical structures 54 eliminates or reduces the need for diffusion in the output of the lightguide that is ordinarily necessary to hide the pattern of white dots. It is also possible to change the slope of the lightguide at a micro-level. That is, the slope of the lightguide may be locally increased or decreased at the micro-level. When a light ray hits a higher positive slope, it will be extracted from the lightguide faster than if it hit the nominal wedge angle.--

92

Please replace the paragraph beginning at page 13, line 19 with the following paragraph.

--With continued reference to FIGs. 4 and 5, diffusion is added to the back surface 66 of the lightguide 60 and is further adjusted in intensity extending away from the input surface 62. That is, the back surface 66 is formed with in-phase optical structures 68 having amplitude A1 to provide diffusive extraction near the input surface 62 and to taper, i.e., having a decreasing amplitude A2, to naught away from the input surface 62. The pattern can also be non-tapering, i.e., constant amplitude A1 or A2, over the entire surface, increasing from naught, i.e., A2 greater than A1, randomly varying, or distributed in discrete regions. It is also possible for the optical structures to be out-of-phase, such as optical structures 68' formed in a back surface 66' of the lightguide 60' shown in FIG. 6. It will be appreciated that patterns of optical structures may also be formed in the output surface 64 either separately or in conjunction with a pattern formed in the back surface 66. The overall purpose of providing the optical structures is to achieve an effect that minimizes non-uniformities of the lightguide output wherever they may occur, and for the lightguide 60 shown in FIGs. 4 and 5, the non-uniformities appear primarily adjacent the input surface 62.--

93

Please replace the paragraph beginning at page 14, line 14 with the following paragraph.

--With reference to FIG. 5, the optical structures 68 may be formed on a surface 72 of an optical film 70 having a varying characteristic such as a pitch decreasing from P1 to P2. The optical film 70 may then be coupled to the wedge structure of the lightguide 60 using ultraviolet (UV) curing, pressure sensitive or any other suitable adhesive. Alternatively, the wedge may be molded in bulk to include the optical structures 68 in the back surface 66.--

a4

Please replace the paragraph beginning at page 15, line 17 with the following paragraph.

--As an example of the above-described features, and with reference to FIG. 7, a linear Fresnel lens or prism 80 has a substantially planar input surface 82 and an output surface 84. The output surface 84 is formed with lens structures 86 and superimposed on the lens structures 86 are additional optical structures 88. The optical structures 88 have characteristics, such as amplitude A1 and A2, period P1 and P2, and aspect ratio, that vary from first edge 90 of the lens 80 to a second edge 92 of the lens 80. The lens 80 may be formed in bulk, or as shown in FIG. 7, the lens structures 86 including the optical structures 88 may be formed on a film 94 that is then bonded to a bulk optical substrate 96.--

a5

Please replace the paragraph beginning at page 16, line 21 with the following paragraph.

a6

-- With continued reference to FIG. 8, it is observed that within the pattern 102, the optical structures 108 are formed with large amplitude, A1, at the first edge 104 and decrease in amplitude, A2, toward the second edge 106. The larger amplitude produces more optical power along the groove axis because of the higher surface slopes. The optical power of this pattern then decreases as a function of the distance from the first

96 edge 104. This arrangement of the optical structures 108 and the pattern 102 is purposeful. The optical structures 108 may also be formed with a larger pitch, P1, at the first edge 103 and decrease in pitch, P2, toward the second edge 106.--

Please replace the paragraph beginning at page 17, line 18 with the following paragraph.

--In the lightguide 121 illustrated in FIG. 11, a first pattern 122 of optical structures 124 is formed in a bottom surface 126 and second pattern 128 of optical structures 130 is formed in a top surface 132 of the wedge 134. The first pattern 122, having varying pitch decreasing from pitch P1 to pitch P2, may be arranged to facilitate extraction of light from the edge 134, while the second pattern 128 may be arranged to mask non-uniformities in the light output form the wedge 134. It will be appreciated,

97 however, that the patterns implemented in the wedge 134 will depend on the desired light output to be achieved from the wedge 134. Moreover, as described above, the patterns 122 and 128 may be formed first in an optical film that is later coupled to the wedge 134, for example, by bonding. In another form, surfaces 122 and 128 are injection molded with the wedge.--

REMARKS

Claims 1-27 remain pending in the application and stand rejected as being unpatentable under 35 U.S.C. § 103(a) over Wortman et al. (US Patent No. 5,771,328) in view of Suzuki (US Patent No. 6,088,074) and in further view of Masaki (US Patent No. 5,940,571). Claims 1, 12 and 24 are further rejected under 35 U.S.C. § 112, second paragraph.

The office action objected to the drawings for containing reference signs not described in the specification. Applicants have amended the specification consistent with